

Our Splendid Eastern Gentians

MARY G. HENRY

Nature has kept until the very end of the season one of the greatest events of the entire year. For when *Gentiana porphyrio*, the Pine Barren Gentian, opens widely its brilliant deep blue flowers, often on a cold October day, the effect is so startlingly beautiful, so completely and satisfyingly lovely, that botanist and ardent gardener alike feel that truly this is a fitting climax to the floral season.

No matter that it is expected and that this grand display comes with unailing regularity year after year, each season I experience the delightful sensation anew.

Besides the narrow-leaved section, of which the foregoing is the most important member, there is another showy group of this family, the closed or Bottle Gentians, of which *G. Andrewsii* is most commonly known. In fact, it must be confessed that there are many gardeners at the present time who still believe that there is but one "Bottle Gentian." There are, however, a number of species that make up this class of gentians and all are handsome plants and well worth making an effort to obtain.

Autumn gardens in this country are much the poorer because of the lack of them and it is greatly to be desired that at least some of these late season, long lasting and dignified beauties will soon be seen in every garden where fall flowers are prized and a suitable spot can be found in which to grow them.

Gentians are at their best and look extremely attractive when planted in a naturalistic fashion in a wild or informal garden. They do very well when planted in conjunction with compact growing shrubs, or perhaps grouped about the base of a tree. They should be planted in small groups of, perhaps,

two or three plants and if planted fairly close together, so that they can be seen at the same time, the flowers of the different species will be in various stages of development and will create a picture not easily forgotten.

Most gentians, at least most of the closed ones, seem to do best with partial shade during the warmest part of the day and most of them like a situation where the soil does not utterly dry out. They are easy to grow and when in a congenial position they are long lived plants, increasing in beauty year after year and demanding little attention.

The more vigorous members of the family make large clumps, with six or eight, sometimes more, stout 18 to 24 inch stems heavily laden with flowers of pure sapphire blue. Such plants are indeed striking objects.

A good dark loam that has enough humus to hold moisture well is a satisfactory soil for most gentians. If it is very heavy, a little coarse sand can be dug into it to a depth of about 15 inches, so that the thick white roots will reach a greater depth and so withstand both heat and drought. If moles, mice or other burrowing animals are abundant in the vicinity, it is well to use a liberal amount of crushed stone and work it evenly into the soil around the roots, taking especial care not to break them, as they are very brittle and easily broken. Since using the broken stones, my gentians have not been troubled with mice or moles. After a struggle with these pests, which lasted for many years, I devised this method of outwitting them and have used it with many other plants and bulbs on my hillside garden.

Gentiana porphyrio and *Gentiana Pennelliana* are the only two members

of the narrow leaved section and they require very different treatment from the "Closed Gentians." These are both plants belonging to the Coastal Plain and they will succeed only in a strictly acid soil. Good old fashioned New Jersey bog peat and ordinary "bar" sand make the ideal ingredients for a Coastal Plain mixture. At Gladwyne *Gentiana porphyrio* and *Gentiana Pennelliana* succeed best in full sun.

All gentians start growth very late in the spring. At that time of year it is necessary to cultivate the ground with utmost care in order not to injure the tender young shoots, which, as they are dark purple brown in color, are hard to see. How well I remember one spring when I went on a gentian hunt in March, creeping on hands and knees along each likely looking creek I came to. It was slow work but I was well rewarded.

Although gentians usually grow where there is some moisture in spring, during the mid-season they can stand considerable drying of the soil with no ill effects. As summer advances and the flower buds begin to swell, they must be given water if the ground is hard and dry.

There is one notable exception, however, and that is *Gentiana villosa*, which grows on many pine and oak clad slopes of the Coastal Plain, sometimes in thin sandy peat and sometimes in stony clay but always where the soil bakes dry in summer.

Now for the species and their varieties and I will only name those that are growing and thriving at Gladwyne.

Gentiana Andrewsii is really a pre-autumn bloomer that is at its best in late August. It is a handsome strong-growing sort with fine deep blue flowers. The white edged "plaits" protrude slightly beyond the blue "bottles" and are an aid to identification. Gentians are difficult plants to name correctly

and when purchasing, a dealer should be selected with some knowledge of this family of plants, else like as not the wrong plant is obtained. *Gentiana Andrewsii alba* is an unique and very distinguished looking plant, which makes a conspicuous contrast to the blue flowered type. The lovely cream white flowers always seem to me to resemble huge pearls.

Gentiana Cherokeeensis might be compared to a very dainty and slender edition of *Gentiana Andrewsii*. The thin stem decorated with narrow green leaves carries the few flowered cluster of clearest blue flowers that seem large for the size of the plant. They are October bloomers and they sway gracefully as each breeze wafts them to and fro, a pretty sight.

Gentiana clausa is undoubtedly one of the "glories" of the whole race. Possibly it can be classed as the finest of all the Bottle Gentians. Surely anyone who has seen this grand plant in full growth and flower will not gainsay this statement. The stiff and sturdy stems carry a full complement of broad and glossy thick leathery leaves. Towards the summit of each stalk great bulging cylindrical flowers, closed and rounded at the apex, emerge from the axles of the leaves. A broad rosette of the showy flowers tops the stem. The blue of a good form of *Gentiana clausa* is the deepest and richest color I ever saw on a gentian and the flowers acquire a still darker hue as they age. In fact, I have seen some that might truthfully be called blue-black. In good soil that does not dry out, I have found immense 6 to 10 stemmed clumps 2 feet tall.

Gentiana decora as I have seen it in some of its mountain haunts, is a plant of small proportions. While it is not nearly so magnificent as *Gentiana clausa*, still it is a plant of unquestioned beauty. The common name "Striped Gentian" is very apt as the flowers are



Mary G. Henry

Gentiana cherokeensis in eastern Virginia

usually striped inside and sometimes externally too. It grows about 8-10 inches tall, sometimes more, and does not often have more than one or two stems, but the flowers are large and striking. Although it seems to have a preference for moist places, still it is not at all unusual to find it on a dry shady hillside. I have invariably found it in the mountains at about 4,000 feet to 5,000 feet altitude.

Gentiana decora breaks into many color varieties. Rarely it is solid deep blue. Blue flowers with white stripes are common. Sometimes they are white with faint blue lines and these are very attractive and resemble fine porcelain. Occasionally they are a deep old rose with white lines or white with rose lines. Every variety is extremely pretty. A not-too-rich mixture of leafmold, crushed stone and clay suits this gentian.

Gentiana linearis. The finding of this gentian was quite an event, as is indeed the finding of any gentian. It had been raining hard one day as I was motoring through the Pennsylvania mountains and everything looked dreary, until glancing from the car I caught a glimpse of a small but vivid flash of blue. In a minute I was kneeling beside it. From its locality and also from its slender growth and narrow leaves, I knew that it could be none other than *Gentiana linearis*. It is a delightful little plant, more slender in growth even than *Gentiana Cherokeeensis*. The tips of each closed blossom are white, which serves to accentuate the blueness of the blue. In places along the roadside in full sun, *Gentiana linearis* seemed entirely happy. Only one variation could be found, a lovely pale sky blue.

I entered the forest where the trees were not very dense and found myself in a sort of glade with a tiny stream no more than one foot wide meander-

ing through the trees. Everywhere there were gentians — hundreds and hundreds of them—growing up through the drenched and fresh green grass where the sky was visible overhead while others leaned far over the tiny creek showing their happy little images in the narrow wavering stream. Nothing could have been lovelier.

Gentiana parvifolia is native to the Coastal Plain of our Southeastern states and I have found it in Georgia, South Carolina, North Carolina and Virginia. Plants from numerous localities in the above states have all been growing at Gladwyne for years. As is to be expected in a plant that covers such a wide range, there are variations. From a horticultural standpoint, the main difference is the time of year in which they bloom.

G. parvifolia from Virginia, blooms in October, while plants of this species from Georgia usually bloom about mid-November. *G. parvifolia* is amazingly hardy and often its showy deep blue flowers can be seen on a bitter December day with the dead brown leaves of the trees for a background. It is one of our most handsome gentians, one of its distinguishing features being that as the flowers age they turn to a deep maroon red. Often a large bloom spike will have flowers on it in many shades from deep blue to deep red. So, although a plant with freshly opened flowers is very beautiful, an older plant is even more spectacular.

Gentiana parvifolia rosea. I only have one definite color variation, but it is indeed a "wow," if I may be permitted to use an expressive vernacular term. The flowers are a delightful shade of pale rose and as they age they turn to a deep old rose. It came from Virginia and was growing with a number of typical blues.

Gentiana parvifolia from all the above named states is perfectly hardy and easy



Mary G. Henry

Gentiana clausa in northern Pennsylvania, growing from stream bank



Josephine Henry

Gentiana decora from North Carolina growing at Gladwyne



Mary G. Henry

Gentiana linearis at home in northeastern Pennsylvania



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Gentiana saponaria aff. Stem measured 42 inches long. Western Georgia

to grow but it does require a mixture of sand and peat.

Gentiana saponaria is yet another extremely handsome and distinguished gentian. The blue "closed" flowers are not as dark as some but they are very fine and clear in tone. It is an excellent long lived stout growing perennial. This is a Coastal Plain species so its preference is for an acid soil that is retentive of moisture. The only variation I ever found is a very pale blue. It is a lovely plant and contrasts nicely with the deep blues of the type.

Gentiana saponaria alba. For years I have searched for a white form of this gentian but all my efforts met failure. Three years ago a friend told me she had found a white gentian on her own home grounds in New Jersey. Aware of my great interest in *Gentiana* she

said she marked the plant carefully and would send it on in a few weeks' time when it would be ready for removal. Thrilled to the core, I could hardly wait for the days to pass. When the allotted time came, my friend went to dig the precious gentian for me. An empty hole in the ground told the story. So the beautiful white variety of *Gentiana saponaria* that came so close to my garden of gentians is farther away than ever and I am still mourning its loss.

Gentiana villosa is the only thoroughly "dry" gentian with which I am familiar. Although it is not by any means a showy plant, it is an exceedingly attractive one, and no admirer of gentians would willingly do without it.

The plant is rather a dwarf "tufted" species, and makes quite a nice many-stemmed clump about 6 or 8 inches tall.



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Gentiana saponaria in S.E. Virginia

The foliage is a pale, often glaucous green, so that it is easy to distinguish even when not in bloom. The closed flowers are as large as those on the more vigorous species and are creamy white, usually shaded with green blue or deep rose and as they age they deepen in color. There are intermediate, rather muddy looking shades which are not nearly so pretty. The flowers often come closely together in a head of perhaps seven or eight and make a perfect rosette. It is indeed a dainty and decorative plant.

The first plants I found of this were in Georgia near the Florida border. They were colored a deep old rose and I thought them about the prettiest gentians I had ever seen. It has been growing in my garden ever since and has weathered many winters without protection.

Gentiana villosa, blue-flowered variety, is growing here too. I found that one farther north in Georgia. The pink and blue varieties are growing close together here and bloom with unfailing regularity every October and November, often lasting into December. Such charming flowers coming so late in the floral year do much to shorten the long dull season and always seem to bring a very special and comforting message to us to wait patiently, for the bravest of the brave spring flowers will be with us in just a few weeks' time.

Gentiana villosa is a plant "par excellence" for the rock garden. It absolutely requires sharp drainage and it does demand a situation where it will not be overgrown by more rapid growing plants. Its distinctive gray foliage makes it a fitting plant for an "accent" during the entire summer. With its accommodating habit of staying where it is wanted, it may safely be used with choice and rare plants. As for its flowers, well, they are few and far between

that can improve upon them in November.

There is another gentian, a magnificent one that deserves special mention. It grows about 10 inches tall and Dr. Wherry, who has observed it here for some years, says that in some ways it shows a relationship to *Gentiana puberula*. It flowers very late in the season after most of the other species are over and makes a truly marvelous display. I found this gentian in the mountains of western Georgia. The fact that it does well in ordinary soil in full sun should make it of exceptional value.

The day I found *Gentiana Pennelliana* gave me one of the biggest botanical thrills I ever experienced. Since that time, years ago, I have seen countless numbers of many kinds of flowers but I still think *G. Pennelliana* is one of the most superlatively beautiful flowers I have ever seen.

I remember finding it so well, because early one chill November morning I had walked by a bog and seen nothing noteworthy. Later on the sun was shining brightly and then the startling white flowers of *G. Pennelliana* opened up and showed vividly against the blackish peat. My pleasure and surprise was very great at finding something so beautiful so late in the year.

Gentiana Pennelliana belongs to the narrow leaved section of the family, the only other member of which is *Gentiana porphyrio*. Compared to the latter species, *Gentiana Pennelliana* is a dwarfier, stockier plant usually with a greater number of flowers, more stems and the roots are shorter and thicker. The large immaculately pure snowy white flowers open flat and are of perfect form and flawless symmetry. They emerge from long pointed spirally folded buds that are colored blackish green and the contrast is very great. Inside the tube are a few green lines. No one should



Josephine Henry

Gentiana villosa at home in South Carolina



Josephine Henry

Gentiana Pennelliana in a frame at Gladwyne



Josephine Henry

Gentiana porphyrio alba at Gladwyne

attempt to grow this exquisite plant until he has achieved success in growing *G. porphyrio*.

Gentiana Pennelliana is one of our

rarest plants. It is known only from a very limited range in a few counties in western Florida.

I have had but two plants of this

gentian. Owing to its scarcity it would be criminal to have taken more. Alas, the little bog where these came from is near one of the huge pulp mills that has recently sprung up like a mushroom and a trailer camp is but a scant stone's throw away. Quite likely there is not a single white gentian there now, and one more hideous "modern improvement" has done its worst.

Last January one of my plants of *Gentiana Pennelliana* bloomed in a cold frame. A few days later the thermometer touched four below zero. The flower was within three inches of the glass. Surely it must have felt what it is like at zero for the first time in its history. My hope is to obtain viable seed.

Except for its rare and lovely relative, *Gentiana Pennelliana*, *Gentiana porphyrio* is certainly the most beautiful of all eastern American gentians. The flowers are of an exceptionally brilliant blue and they appear almost like blue butterflies hovering over the ground. The slender stem, scarcely larger than a hat pin, swaying with each breeze, is hardly visible a short distance away. It grows about seven to ten inches in height. Sometimes it is a little taller when it is growing in shade. The flower is a true gentian blue of amazing purity of tone. Inside the tube, it is white and in the throat green dots like tiny emeralds spread over the white and well into the blue. There are several definite color variations of *G. porphyrio*. The type, as I take it, is brilliant blue and usually the "plaits" are a paler blue than the expanded corolla. In another variety the plaits are just as dark a blue as the corolla, possibly darker. A third form has pure white plaits and a deep blue corolla, giving the flower a fancy variegated appearance. A fourth form has fine pale "baby blue" flowers, quite startling in its sweet and simple purity. I have also a

pale heliotrope colored flower that I like, very much.

Gentiana porphyrio alba was given to me by a generous friend. It is indeed one of my choicest possessions. Except that it does not have blackish buds, it is much like *Gentiana Pennelliana*. Like the type the throat is spotted with tiny emeralds of exquisite beauty.

Next to the white variety, however, *Gentiana porphyrio rosca* is the finest and most striking gentian I have ever seen. I found it in southeastern North Carolina near Wilmington. Tiny emeralds dot the throat of this one too. Unfortunately coming from so much farther south than the others, it blooms very much later. Occasionally the flowers get frosted, but this past year these southern forms bloomed in their gorgeous perfection right up to and into December.

Fortunately for keen gardeners, seed of *Gentiana porphyrio* is usually obtainable and providing conditions are to its liking, it is comparatively easy to raise. It is imperative that the Coastal Plain mixture as already described be used both for the seed pan in which to grow the seedlings and also for their permanent bed. Plenty of crushed stone dug into the mixture is the best insurance against mice and moles. It is well worth while to make a big effort to cultivate this invaluable plant successfully. Color varieties can be divided.

There are a number of other gentians growing here that have not yet been positively identified. Among them are new varieties or possibly new species. Dr. E. T. Wherry and Dr. R. T. Clausen have been most helpful in identifying the foregoing plants.

Of course my search for gentians is still going on. When one has dug as deeply as I have into a splendid family of plants, one's enthusiasm does not wane!

Gladwyne, Pa.

Two Leafy Greens a Day

HELEN M. FOX

To supply a family of four or six with leafy greens for the growing season requires only a small space of ground, a front or back yard, not more than twenty-four by thirty-six feet. The owner of a tiny garden who cannot grow all the necessary vegetables might plant lettuces, spinach and some unusual pot-herbs such as Chinese mustard, borage and land cress to provide fresh greens rich in vitamins and minerals.

Not so long ago, boiled spinach was a slimy, green dish that resembled seaweed and was highly unpopular with children as well as with adults, while green salads were eaten by foreigners and used only by native born Americans to decorate a plate of steak. Today cooked greens, whether of spinach or other plants, are chopped or put through a meat grinder after being boiled, then reheated and mixed with cream or butter, flavored with herbs, and served frothy, soft and appetizing.

Nutrition experts advise that at least two leafy greens be eaten every day, either cooked or raw, for they contain vitamins A, C, and D, all essential to well being, to build tissue and increase resistance to disease. In addition, all leafy greens contain calcium and phosphorous. The leaves of a dark hue, such as spinach and beets, are rich in iron. All members of the cabbage family are particularly high in these minerals. Besides these vitamins and minerals, leafy greens contain other elements essential to health and growth.

In the garden, leafy greens require sunshine and a friable soil with readily available nourishment. The greens must be kept growing continually to be crisp and not become tough, so in time of drought they have to be watered. Moreover, it has been found that an

extra application of nitrogen stimulates leafy growth and encourages lettuces and spinaches to become lush. This can be administered in the form of pulverized sheep or cow manure, dissolved in water, dried blood or other wastes from slaughter houses, or liquid manures from the farm yard. Spinach does not grow where the soil is acid nor does lettuce, which also requires well tilled earth and not one where soil has been turned under the previous autumn.

Certain of the greens, such as spinach, the lettuces, corn salad and the cresses can be grown successfully only in cool weather, while others, such as chicory, Swiss chard or escarole, thrive when it is hot and a few greens do well in both hot and cool weather. Seeds of greens are sown one inch apart, in rows ten to twelve inches apart, and later thinned to stand three to four inches from each other. Some gardeners find that transplanting lettuces encourages the formation of heads. However, greens are generally sown where they are to mature, except for the cabbages which are started indoors or in a seed bed.

When serving greens, the more they look like plants growing in the garden, the richer they will be in food value, so the cook tries to keep their color and crispness. Also, the shorter the time between soil and salad bowl, or soil and vegetable dish, the higher the food value, for the longer lettuces, endive or orach leaves are exposed to air and heat, the more vitamins are lost. Consequently, greens grown at home, brought straight to the kitchen from the garden, and prepared for the table, immediately, are much higher in food value than lettuces or spinach, packed in bundles, and shipped some distance to

market and thence transhipped to the home. Those who cannot grow their own greens can be consoled by the knowledge that commercially processed vegetables are always put up immediately after picking and are higher in food value than so-called fresh vegetables bought in a market.

As soon as the greens reach the kitchen, instead of leaving them in baskets on the back porch, they should be washed to remove sand, grit and residue of spray, then drained and put into a covered vessel in a refrigerator or cool place. Some wrap their salads in a damp cloth and some cook their greens before putting them on ice. The cooking of greens, as also other vegetables, should be quick, only long enough to make them tender. Rapid cooking prevents loss of food value, which occurs during long exposure to air, liquid or fats. Little water saves food value. The quickest cooking is done in very little water, sometimes only as much as clings to the leaves after they have been washed. However, the green coloring in vegetables, the chlorophyll, is slight soluble in water and when heated in the presence of an acid turns brown. When greens are cooked in a large amount of water—since most of the acid escapes during the first fifteen minutes of boiling—they keep their color but lose some of their nutritional value. The cook has to decide whether she prefers green coloring with less food value, or brownish color with more. Nowadays no cook uses soda to keep the color in vegetables, for she knows, though a tiny bit added to greens makes them greener, a small excess or even a slight overcooking in the presence of soda, will destroy part of vitamins B and C, and make vegetables soft and mushy. Comfrey, borage and true spinach stay green when cooked in an open kettle with much water. Cabbage and its relatives cooked

in an open kettle, with plenty of water for a short time, have a mild flavor and almost no odor. However, greens such as nettles, lettuce, escarole and New Zealand spinach can be cooked in very little water, and for from five to eight minutes.

Spinach is the green cooked more frequently than most others and has given its name to other dishes of boiled greens. However, there are a great many leafy greens which are equally nourishing and pleasant to the taste. When there is a garden to draw from, a nearby farm, or an Italian green grocer, many different greens are procurable and they can be mixed, instead of being served separately and thus be varied in flavor as well as texture. In spring, when dandelion leaves are available, a few added to bland greens such as spinach, field salad or orach, bring a taste of bitterness, while borage or comfrey add the flavor of cucumber; mustard or cress of sharpness; and sorrel a touch of sourness. A little rosemary in cooked greens brings its own delicious flavor, while mint or savory each adds its special taste, as does basil. Many cooks add finely chopped bacon to their cooked greens, or a little onion juice and some favor lemon or orange juice. The flavor must blend with the particular green as well as with the other dishes on the menu.

Nowadays with the scarcity of professional cooks in the home, more housewives than ever before do their own cooking. They read accounts of new recipes in newspapers and magazines, and go to lectures given by home economics experts, so they are keen to try new and different dishes, frequently made of vegetables hitherto unknown to them.

A little-known vegetable is borage, listed among the herbs because its flowering tops bring the flavor of cucumber to fruit drinks and wine cups. When

cooked, the hairy leaves soften and make a delicious green. In former days borage was thought to be exhilarating and cordial, and render people courageous. The plant is an annual weed along the Mediterranean shores, where nodding clusters of blue flowers grow under lemon and orange trees. In the garden, two plantings are made six weeks apart to keep up the supply. The first could be sown in early May. As with most herbs, a small bed, not larger than six by eight feet, is sufficient to supply the needs of the average sized family. The leaves are palatable only when young. Cooked with an equal amount of beet leaves, borage furnishes a fine flavored, soft-textured green.

HERB PIE

Ingredients:

- 2 handfuls parsley leaves
- Half the quantity of spinach
- 2 lettuces
- 2 handfuls cress or Chinese mustard
- A few leaves of borage and comfrey
- 1 handful of beet leaves

Wash and boil the leaves a little. Then drain and press out the water, chop them, mix and lay in a baking dish and sprinkle with salt. Add 2 eggs beaten, $\frac{3}{4}$ cup cream, $\frac{1}{4}$ cup milk all mixed, and stir into the greens. Cover the mixture with a crust as for pie, and bake until the crust is brown, about 20 minutes.

This pie tastes of cucumber (from borage and comfrey) combined with parsley and is a delightful luncheon dish.

Said to be the oldest cultivated plant is orach, also called mountain spinach and butter leaves. Chinese, Greeks, Romans and later, in Mediaeval and Renaissance times, Europeans, ate orach leaves. It is a hardy annual and reaches a height of two and a half feet. The leaves grow on long stalks, are arrow-shaped with toothed and wavy margins,

and continue to be edible over several months, if the stems are cut back now and then to encourage young, tender growth. The seeds are sown in rows, one foot apart, and plants are six inches apart. There are three forms of orach, the white with pale green leaves, and this one is most frequently grown; a green variety slightly more vigorous and with rounder leaves and a red variety.

Two turnips have been bred for their tops instead of the edible roots. They are "seven top" and the more recently introduced Shogoin, which takes only thirty days to mature from seed. Like turnips grown for their roots, they are late summer plants and can be planted in August or later, in the South. After cooking, the leaves have a peppery, somewhat bitter taste, and are more palatable when mixed with half the quantity of bland greens than when served alone.

It is convenient to have a few perennial vegetables in the garden for once they have become established they require little attention except to divide them and keep them weeded. Two perennials with pleasantly tasting leaves are sorrel and comfrey. The leaves of sorrel are practically the first green to appear in the garden in spring and can be gathered while snow is on the ground to add their sour taste to soup, and other cooked greens, or be chopped in a salad. The plant is native to Europe and Asia, has become naturalized in America, and is larger than the closely related weed, redtop. The creeping root stocks increase so rapidly they must be divided ever so often. The leaves are edible only when young and tender and are not eaten alone but in cream soups, or mingled with the leaves of true spinach, one-third sorrel to two-thirds spinach.

Since comfrey does equally well in sun or light shade it can be tucked away

where other vegetables would not thrive. A small bed of eight or ten plants will supply the family. Comfrey comes from Europe and temperate Asia, is hardy and grows about two feet high. The leaves are roughly hairy and the whole plant is faintly redolent of cucumber, and tastes of it. For centuries, extracts of the roots were used to cure wounds and infusions of the leaves taken for internal bleeding. As with most plants the leaves lose their hairiness when cooked. When prepared in an open kettle, in water, they produce a rich, somewhat coarse spinach.

Present-day North America is the land of salads. This is not surprising considering how abundant, delicious fruits and crisp greens are all year round. In early Roman days banquets terminated with a salad, perhaps of the supposed soporific effect of lettuces. Whatever the reason, the custom earned the disapproval of Emperor Diocletian, who issued a decree that the meal should begin with instead of end with a salad. Two thousand years later the custom was re-established in California where the meal often begins with a salad. However, in all parts of the country salads frequently form the main course, particularly for lunch.

Since raw food is delicious, nutritious and simple to prepare, the question naturally arises whether it is worthwhile to cook at all. However, in spite of faddists who live on nuts and fresh greens, experts say a diet of raw foods only would give the digestive system too much work. Cooking breaks the cellulose — the woody frame of leaves, stalks and roots — and therefore increases digestibility. Uncooked foods have their digestibility increased by cutting the leaves or fatiguing them. The vinegar or other acid in the dressing also assists digestibility. It depends upon the green whether it is to be served crisp or fatigued. Fatiguing is

accomplished by turning the leaves over and over with a fork and spoon until they have lost their crispness but are not limp. Heads of stiff Cos or Iceberg salad should be cut, shredded or torn, but this ought to be done just before serving or vitamins will be lost. Salads can be served alone, mixed with other greens or combined with vegetables, meat, fish or fruits.

Besides aiding digestion, the oil or cream in the dressing provides nourishment and the sauce adds to the tastiness of the dish. The basic theme of all dressings is composed of three parts oil to one of vinegar with salt and pepper, and sometimes a little mustard. Infinite are the variations played upon it. The first variation is a cream dressing that goes best with soft-leaved greens, such as lettuce or field salad. The cream, either fresh or sour, is not too thick and takes the place of oil. Three parts of it go with one of lemon juice, used instead of vinegar. Mustard can be added when the cream is sweet. The proportions are one-third pint of cream to one teaspoonful of prepared mustard, the juice of half a lemon, salt and pepper. This mustard cream dressing is pleasing on sliced cold beets or celeriac. Another variation is made with bacon instead of oil. The bacon is melted, and browned in the frying pan where it is mixed with vinegar, pepper and salt (only a little of this because the bacon is salty). Enough of the hot dressing is poured over the greens, waiting in a warm dish, to wilt the leaves. This dressing goes best with dandelion greens or red cabbage leaves but is pleasant on bland greens as well.

An egg dressing is made with the yolk of hard boiled eggs, mashed, strained and mixed with mustard, oil, vinegar, salt and pepper. The white of egg, finely chopped, is added last.

Herbs in salads bring a fresh delicate

taste. However, they should be added in moderation. An easy way to infuse their flavor is to take vinegar aromatized with them, or to mass them into the oil before adding it to the vinegar. Fresh herbs are finely minced and dried herbs broken into little pieces. For four people, half a teaspoonful of fresh herbs and one-quarter teaspoonful of dried herbs would be enough. Where tarragon is available it can be chopped finely and scattered over lettuce leaves.

Lettuces are the best known of all salad plants and the most frequently eaten. Six weeks after sowing, leaves of edible size will be produced and can be picked from plants that have to be pulled out to thin the lines. Greeks and Romans, and before them Chinese, cultivated lettuce. Formerly gardeners spent much effort in inducing their lettuces to head, so the inside leaves would be whitened. Now it is known the greener the leaves the higher they will be in food content, consequently lettuces, such as "black seeded Simpson" and "oak leaf," that are open and green, and full of vitamins to the last leaf, are becoming popular.

There are many cresses, all with a sharp, stimulating taste, delightful in salads, or to flavor cooked greens. Some of them are cool weather plants for they bolt—that is, send up a flowering stalk—quickly in hot weather after which they become too tough to eat. Chinese mustard and land cress are two particularly pleasing greens for the home garden. Both germinate within thirty days. In the North, cool weather greens are sown as early as the ground can be worked, along with the first peas. In the South they can be planted late in summer for autumn use, or early in autumn for winter or early spring use. Land cress, also called upland, garden cress or peppergrass, is native to Persia and was cultivated in early Egypt. Seeds can be bought from

American seedsmen. The edible leaves are crinkly and when fresh and young, have a peppery taste similar to mustard greens or nasturtium leaves. They taste best mixed with other greens. There are several varieties, some with wide leaves and one with leaves much curled, and there is the usual yellow form.

The most satisfactory of the peppery tasting mustards for the home garden is Chinese mustard. The plants were introduced to America from China, where they have been grown so long their origin is lost in antiquity. They will undoubtedly be growing in every American garden in the near future for they last a long while when constantly picked and are delicious raw as well as cooked. The leaves are dark green and grow in loose clusters. Of the many varieties listed, the best known is Southern Giant, with curled leaves, much cut margins, and feather veining, a plant that has taken the place of spinach and lettuce where it is too hot for them to grow well. Ostrich Plume is slightly hairy and looks like its name. Tendergreen has lyre-shaped leaves, similar to the foregoing but less indented and less curly. "Florida broad leaf" has smooth leaves and toothed margins. The plants are resistant to heat but "run out," so there should be several successive plantings. A patch eight by twelve feet provides an abundance of leaves.

CHINESE MUSTARD SOUP, A CHINESE RECIPE

Ingredients:

- ½ pound Chinese mustard greens
- ½ cup sliced raw, lean pork
- 4 cups chicken stock or water
- ½ teaspoon salt
- 1 teaspoon gourmet powder (mixed herbs can be substituted)

Clean the mustard greens, cut them into pieces 2 inches long. Heat the

chicken stock, add all ingredients and boil 6 minutes.

Another Chinese plant is Chinese cabbage, introduced into America about one hundred years ago. It looks like a very large Swiss chard, except that in some forms it is hard all the way through. Of the forms listed in the catalogues, three seem the best for home growing. They are Pe-Tsai, with an elongated compact head and crinkled leaves; Back-Choi, with oblong, deeply cut and smooth leaves that do not form a solid head, and Chili, with firm pointed heads often eighteen inches long. The plants require cool weather and quick continuous growth. In the North, they are a fall crop and the South, are grown in winter. For a fall crop in the North they are sown in early July for they take about seventy-five days to mature. The seeds are planted in the garden and thinned so the plants stand twelve to fifteen inches apart. To prepare Chinese cabbage for the salad bowl, it is sliced crosswise into pieces one inch thick and then dressed, preferably with French dressing. The leaves are crisp and some think they taste slightly of anise. To cook the leaves, the Chinese boil them rapidly for five minutes, then let them simmer for fifteen minutes longer. Before serving, a dash of soy sauce is added, or they are put into Chow Mein. In the absence of soy sauce, they can be dressed with melted butter, pepper and salt or with a meat gravy.

A hardy cool season salad is corn or field salad, also called fetticus or mache. The long, narrow, basal leaves disposed in a rosette, are of different lengths, and widening at the rounded tip, and they provide a delicately tasting bland salad. Corn salad is a weed in Europe and has become naturalized in North America. It was not cultivated until the seventeenth century and soon thereafter variations were noticed with

leaves longer, shorter or wider than the type, one a deeper green and another with a yellowish cast. In present-day catalogues a form called "large round-leaved corn salad" is listed.

In mid-summer, along the roadsides and meadows of North America, grow drifts of plants with tall stems almost bare of leaves, carrying flowers of a pale blue and once in a while of white, or a lovely tone of pink. This is chicory, a hardy perennial; selected forms with leaves wider than those of the wild plant and less bitter are variously called whitloof, French endive and Brussels chicory. Only the very young leaves are palatable, the older ones having a bitter taste. However, they have been cooked and served with boiled beef, and eaten raw since earliest days. Old time herbarists valued the purifying and medicinal virtues of the plant. Seeds are sown early in summer to provide leaves for salad by fall. On the approach of cold weather, the roots are lifted, the side shoots and tips trimmed, so they will have a single tap root, eight to ten inches long and the leafy tops cut off about two inches. The roots are then planted in a trench deep enough for the top to be eight inches below the surface and the hollow is filled with good, light soil. If top growth is to be hastened a layer of manure is laid over the trench. The leaves will push through in about a month and are cut with a portion of the root attached. They have a delicate flavor, are crisp, and are served either whole or chopped into half inch pieces and with French dressing. Endive can also be cooked and served with browned butter or gravy.

Since there are so many different greens available for salad, or to boil, it is possible to make the two leafy greens a day attractive and to vary their appearance as well as their taste.

TWO LEAFY GREENS A DAY

<i>Name</i>	<i>Salad</i>	<i>Cooked</i>	<i>Cool Weather</i>	<i>Warm Weather</i>
Anise leaves	X			X
Beet tops		X		X
Belle Isle cress	X	X	X	X
Borage		X		X
Burnet	X	X	X	
Cabbage	X	X	X	
Chicory	X	X		X
Chinese cabbage	X	X		X
Chinese mustard	X	X	X	X
Collards		X	X	
Comfrey		X	X	
Corn or field salad	X	X	X	
Dandelion	X	X	X	
Endive	X	X		X
Escarole	X	X		X
Fennel	X	X		X
Garden Cress	X	X	X	
Good King Henry		X		X
Kale	X	X	X	
Kohlrabi tops		X		X
Lambs Quarters		X		X
Lettuce	X	X	X	
Nettles		X	X	
New Zealand spinach		X		X
Orach		X		X
Portulaca	X	X		X
Radishes	roots	tops	X	
Red root		X		X
Rocket cress	X		X	
Samphire	X			X
Scorzonera tops	X			X
Sorrel	X	X	X	
Spinach	X	X	X	
Swiss chard	X	X	X	X
Turnip tops		X	X	X
Water cress	X		X	X

Propagation of Muscari by Leaf Cuttings

V. T. STOUTEMYER

The leaves of some members of the *Liliaceae* are capable of forming bulblets when cut off and placed in a rooting medium. In this family the ability to regenerate bulblets is often distributed throughout the length of the leaf and therefore piece leaf cuttings may be used. This is in contrast with the *Amoryllidaceae* in which the capability of regeneration is localized at the bases of the bulb scales or the leaves. Bulbous plants may be propagated by leaf cuttings to a far greater extent than is generally realized.

Hyacinths have been observed to produce bulblets at the bases of leaf cuttings placed in a rooting medium of sand (1) (5) or a sandy leaf mold (2). Barleben (4) described a procedure for the production of bulbs on the cut ends of leaves of hyacinths following their removal by cutting near the bulb. The leaves were placed in layers with the ends inserted to a depth of one centimeter in a rooting medium of sandy soil, which was heaped up in pyramidal fashion on a flat in order to permit the use of longer leaves than could be held up on a propagating bench. The concave sides of the leaves were placed uppermost. The flat was placed under a sash in a greenhouse or frame, and particular care taken to avoid overwatering. Bulblets were formed in eight or nine weeks and were removed when the leaves had dried off completely.

Some recent investigations on the propagation of hyacinths by leaf cuttings have demonstrated that the bulblets arise adventitiously and not from preformed meristems. They originate from epidermal or subepidermal cells (8) (9). Bulblets have been observed to form on intact surfaces of leaves of *Ornithogalum thyrsoides* Jacq. following mild frost injury (3).

Probably in the case of most bulbous plants the use of scooping, notching or other methods of vegetative propagation or the use of seed when permissible, would be more practicable. One advantage, however, of the use of leaf cuttings would be that stock of a rare variety could be increased without disturbing the parent bulb. Leaf cuttings have been of occasional value in the practical propagation of bulbous plants as in the case of *Lachenalias* (6).

In the spring of 1941, an instance of reproduction of muscari by leaf cuttings was observed which suggested that propagation might be practicable under simple frames with sash or possibly even with outdoor nursery conditions. The plant is commonly propagated by vegetative methods although seed is used occasionally (7). Early in the spring of 1941 a mole made a runway down a row of *Muscari Szovitsianum* Baker and severed the leaves from nearly all of the bulbs. The leaves were held lightly in the soil and could be removed easily by a slight pull. In a short time, masses of bulblets developed at the lower cut ends of the leaves. Probably two important factors which favored the formation of the bulblets were the severing of the leaves early in the season and the unusual dryness of the season which prevented the decay of the leaves. A sash-covered frame might be necessary to duplicate these results under certain weather conditions.

When the leaves began to show signs of senescence during the last week of May, some were removed and photographed to show the formation of masses of bulblets at the bases. The abundant formation of the bulblets is shown in the accompanying illustration. The free increase of the stock of this plant in the open ground suggests that



Bulblets formed on bases of detached leaves of Muscari Szovitsianum Baker

the large scale production of this and some other bulbous plants by means of leaf cuttings is at least within the range of possibility.

Bureau of Plant Industry,
U. S. Department of Agriculture

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Rhododendron Notes

CLEMENT GRAY BOWERS, *Editor*

Rhododendron Keiskei Miguel.

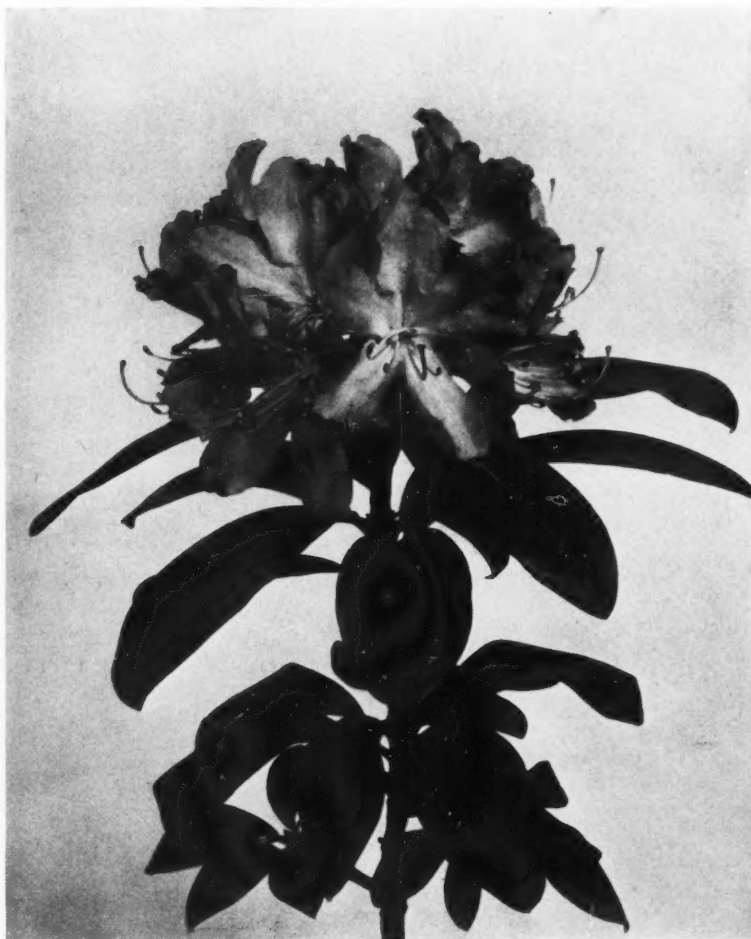
When Dr. Bowers wrote his large and useful book, "Rhododendrons and Azaleas," in 1936, his comments on this species had to be somewhat tentative. "At present we can no more than guess at the outcome, since all plants are too young to properly evaluate for hardiness. The species will be a worthy accession to our list of good garden plants if it proves hardy and the results to date are encouraging. It has red anthers and is of a less sickly yellow than *R. lutescens*, but, says Ward, it is 'nothing magical'."

The present note will not allay many doubts nor can it be considered final. About ten plants were set some years ago in a well prepared location where other rhododendrons were flourishing and where various azaleas have since grown on to full stature. There has been good protection from winter sun

and wind, but no special attention paid to watering in time of drought.

One by one the plants died, for no apparent reason save that indifference to life seems to please them at times, till two alone were left, which grew along with almost as much unconcern. The larger and presumably the happier, is now only about two feet high with an open, rather straggling growth that somewhat resembles that of our own *R. minor* at its worst. It flowered at about five years and then not again until 1941, a spring that followed a well-watered autumn. The illustration shows flowers at life size and gives a clear idea of their disposition and the character of the leaves.

The quotation from Ward is quite correct for it is "nothing magical" and in the plant here the color is not "lemon-yellow" but a faint straw yellow, which carries clearly as such and not as a dirty white, the fate of so many flow-



Claude Hope

Rhododendron ponticum

[See page 60]

ers that are pale lavender or pale pink. If one could find a spot more to its taste, it might make a better plant and a better flowering, and then combined with some of the palest forms of *R. carolinianum* or of *R. minus* itself it might seem even better than it is.

It belongs to the Subseries Triflorum

of which few have been grown here, chiefly perhaps *R. ambiguum* of which I had a plant from Farquhar years ago that was lost before flowering through my own stupidity. Those species seen in England were for the most part greenish yellows and some did not carry their flowers enough above their

leaves to make them showy.

If readers have other data on this species, they will be appreciated, as indeed will be notes on all species of this genus.

Takoma Park, D. C.

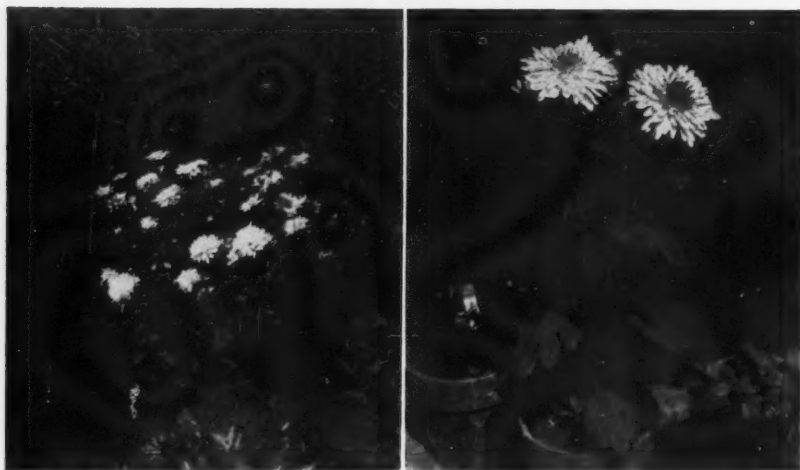
Rhododendron ponticum (See page 59)

This is the European species that does not figure much in the literature, save in its role as stock, a role that it

fills well enough where winters are not too severe, which is not the case in many parts of this country. Where one may lose the original plant, and the stock grows on, it is worth leaving, if one has a place where a mature plant with flowers of a pleasant lavender color will fit. Their character and form is clearly shown in the illustration. The general habit of the plant is more than robust and satisfactory.

Rock Garden Notes

ROBERT C. MONCURE, *Editor*



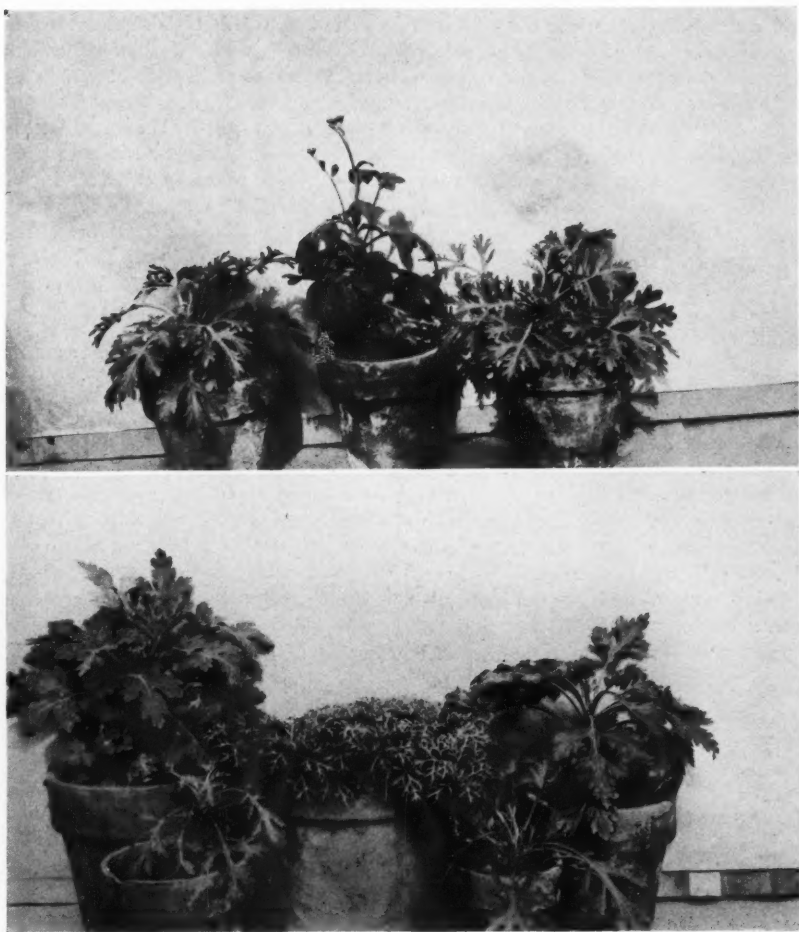
Left: a double-flowered type, taken in August, color blush, fragrant; right, Pink with cream center, taken in April of seedlings germinated after January first.

CHRYSANTHEMUMS

One of the interesting facts that emerge from a study of the published results of work done by contemporary chrysanthemum breeders is that there is no record of any distinctly European species having been used by them in their work. *Chrysanthemum arcticum*,

it is true, occurs in Europe but being circumpolar in its distribution it is as much an Asiatic as a European species, and *C. coccineum*, in its native haunts, merely reaches the gates of Europe in the Caucasus.

Nevertheless there are several species that are distinctly European in



Upper: three seedlings taken 3 months after germination; Lower: *Chrysanthemum zawadskyi* in center, surrounded by its hybrids.

their distribution and of these I feel sure that the Austrian *C. Zawadskyi* is likely to be of considerable value in the production of a race of truly hardy, early flowering chrysanthemums that will be suitable for cultivation, as hardy perennials, in the gardens of the Great Plains region of this continent.

This species has proved hardy for

well over ten years at Dropmore, and conditions being favorable in the autumn of 1940, I made many crosses between it and the early flowering garden forms, using *C. Zawadskyi* as both the male and female parent.

Of the resulting hybrids, having *C. Zawadskyi* as seed parent, all were intermediate between the parents in habit

and leaf characters, while the flowers, though much superior to those of *C. Zawadskyi* still show its dominance both in color and form. All were either white or pink and though a few were semi-double, the majority had only one row of ray florets. In fragrance also the Austrian species was dominant and the majority of the hybrids were strongly honey scented.

Among those having the garden varieties as seed parent, *C. Zawadskyi* also showed its dominance both in foliage and flower characters, though in this lot there were a few that resembled the garden varieties both in foliage and flower form. Some of these were earlier in flowering and of better form than the garden varieties as seed parents, and they have been considered worthy of cultivation in this district, where hitherto only the cushion varieties have flowered early enough for outdoor culture.

As a result of my experiments, I feel

that we are justified in drawing the following conclusions: *C. Zawadskyi* has several characters likely to be of value to the chrysanthemum breeder of the Great Plains region. These are hardiness, early flowering habit and fragrance. The following characters of *C. Zawadskyi* are apparently dominant in the first generation: hardiness, fragrance, finely cut foliage and flower color. The early flowering habit is apparently recessive as all the cut leaved forms are at least a month later in flowering than *C. Zawadskyi*.

Not only are the cut leaved types of these hybrids apparently quite winter hardy but they will stand much more frost in autumn than the ordinary type of garden chrysanthemum. One photo shows some of these cut leaved forms taken on October 20th, one month after a killing frost had cut all other outdoor chrysanthemums.

F. L. SKINNER.

Dropmore, Canada

Gardener's Pocketbook

Lilac Hybrids

With lilacs I have been concentrating in recent years on *S. dilitata* hybrids and have secured some interesting results in my endeavor to secure better white, pink and blue shades in this type. In 1941 I raised a quantity of seedlings from a *S. dilitata-persica* hybrid, on which pollen of some of the best named lilacs had been used and seedlings of extremely strong growth resulted, some two-year-old seedlings having flower buds on them already. The pollen I used last year was from *S. pinnatifolia*, *persica*, *pubescens*, *velutina*, and a reddish-flowered variety of

S. microphylla. As a result I have quite an interesting looking bed of seedlings. Open pollinated seeds of *S. dilitata* × *persica* gave a very uniform lot of seedlings with narrow foliage wrinkled on the margin.

F. L. SKINNER

Dropmore, Manitoba

COMMENTS ON SOME NOTES IN THE
GARDENER'S POCKETBOOK FOR
OCTOBER, 1942

Closed gentian

Curious to watch is the closed gentian and the bumblebee. Lighting on the tip of the flower the bumblebee



Robert L. Taylor

Symplocos tinctoria. Sweetleaf; natural size

[See page 66]

paws apart the petals and disappears within the flower, the petals closing over him. For a few moments the gentian appears possessed of a devil. Then the petals part, the pollen-laden bumblebee flies away and peace returns to the gentian.

Corylus avellana

One of the most beautiful of shrubs is the variety *purpurea*. Like most purple-leaved plants the color is fleeting. But while it lasts it is deep and brilliant, almost Tyrian; at least in some strains. It may bear a good nut too, but never unless there are other filbert varieties to pollinate it; for all filberts are self-sterile.

Passiflora incarnata

How much might be written about this strange flower! There's a chapter on the symbolism attributed to its various parts. Its tincture is mildly sedative; though perhaps some magic lurks in the name, *tincturae passiflorae incarnatae*. It is the may-pop of the southern states. But what the name first suggests to me is the delectable drink made from the fruit and served one hot Florida day by Mrs. Peace, a Tahitian lady of Fort Myers.

Aesculus parviflora

My uncle called this the edible horse chestnut. I find that the seed is entirely free from bitterness and of pleasant flavor, though the tree is a shy bearer. This is important for one who seeks the double-purpose tree. All other horsechestnuts and buckeyes have bitter seeds, though *AE. flava*, or *octandra*, is called the sweet buckeye. But Harriet Keeler says, "The name Sweet Buckeye means simply that the bark is less fetid than that of others of the genus."

W. C. DEMING

West Hartford, Conn.

Iris Bloudowii (See page 65)

The accompanying picture, taken at

a trifle less than natural size, is from a plant contributed by Mr. Fred Borsch, the fresh flower on the left showing the normal carriage of the segments and the fading flower on the right, the subtle changes that appear as the substance grows thin and the bloom gets ready to curl up on itself.

The plant does not altogether agree with the description given in the Handbook of Garden Iris (Dykes, p. 200) since here at least the flower stalks are never so tall and there are certainly more than a "few" brownish veins on the haft. The color also is not "clear yellow" but rather a pale yellow faintly greened. The beard is clear yellow, the spathes are both keeled and inflated. Perhaps like some of the other dwarf pogoniris, it varies a bit and the clone in our hands is not so gay as that which flowered for Mr. Dykes.

Among the hosts of early dwarfs, it probably cannot hold a too distinguished place, but once one has succumbed to the absurd hope of seeing as many species as possible, its flowering needs no defenses.

Fritillaria meleagris (See page 67)

Some years ago, when one might indulge his fancy at times and satisfy his curiosity, a collection of named forms of the Guinea Hen Flower were brought from Holland. Planted fairly deep on the edge of an azalea bed with its deep, friable, humus laden soil, they settled down to a happy existence with what seems an excellent increase about the parent bulbs.

To the untutored eye, there is some difficulty in following the catalogue color terms as translated to sight, but if one enjoys the flowers at all, no defenses are needed. The tones vary from very dark to medium dark, with more of pinkish chocolate showing in the paler forms and the dark, smoky purple browns of chocolate itself marking the



Claude Hope

Iris Bloudowii

[See page 64]

deeper hued. The whites are green whites with a faintly greenish venation as one may see in the picture of the variety Aphrodite that appears on page —, looking down on the dark checkered flower of Poseidon.

There is no help here for those sententious gardeners who want only the best, the one best, with proof and testimony to confront the dubious—for this gardener would buy all if he might, with perhaps double quantities of the green whites.

Oxalis

Although this plant had been known by sight and picture for many a day it was not until the autumn of 1942 that impulse yielded to action and a few roots, one hesitates to call them either tubers or bulbs, were planted in a large pot for the window shelf, with no further knowledge than that they were of several colors—a particularly stupid procedure.

From the mass, have come a series of rather weak-stemmed plants that flop about with fine clover-like foliage and never a flower; and one single almost acaulescent plant, surely *Oxalis Bowei*, with hearty large leaves and now a series of tall stalks terminated with umbels of large rose-red flowers that open for a day and fall. As they grow, they suggest the cool grace of *O. violacea* which makes a thin carpet in our woodlots and not at all the rampageous *O. acetocella*, which in spite of its gay yellow flowers is one of our pestilentially persistent garden weeds, for no matter how salad-minded one might be, he could never keep it within bounds.

Like many other lesser beauties, this single plant has much to take the eye, once conceded. The clear succulence of the light green leaves lightly covered with a sparse, silvery hairiness, the movement of the leaflets at night, the ascending curve of the flower stalks,

the movement of the individual flowers which droop, then rise to open and then hang down to ripen seed. One may be intrigued also by the color combination—the petals of bright rose red, center of greenish yellow, anthers with clear bright yellow—surely not a combination one might be moved to elect and yet, in these proportions and textures, charming.

Were I to risk it again, the bulbs would be planted twice as deeply in the hope that no more earth would be needed to support their uncertain first growths.

Symplocos tinctoria (See page 63)

In July 1941, there was a brief note about this interesting native shrub, but no picture. Now we venture a picture, the natural-sized illustration which should have appeared at that time, in the firm belief that if one turns back to his old file, to look for the text, he will have as much pleasure in looking through the volumes as we did in verifying the reference. For although there may be two schools of thought about reminiscences or turnings back, even the stoniest will admit the pleasure, well-earned or no.

From the Midwest Horticultural Society

Ceanothus americana

The New Jersey tea is one of the shrubs that is native to this region but is little known. Very likely the lack of knowledge is due to its being seldom cultivated. New Jersey tea prefers rather dry situations and will be found on sandy hills, upland clays, and in similar dry spots. It will grow in sun or shade and is apparently unaffected by dry weather.

The growth of this plant is erect, spreading, so that a mature plant is about as wide as high. The small stems are either bright green or a reddish



Robert L. Taylor

[See page 64]

Named forms of *Fritillaria meleagris*: *Aphrodite* (white); *Poisedon* (dark)

brown and slender. The ultimate height is about four feet. The flowers are in clusters at the ends of the branches. They are white and remind me of a miniature spiraea. Plants will flower while only a few inches high and will keep on year after year gaining a few inches in height with each crop of flowers. The foliage is dark green and rugose. It is held even during the longest droughts. The long tap root is likely one objection to the transplanting of this shrub. However, this objection could be overcome in selecting small specimens or in nursery practice to eliminate it.

Botanically this plant is *Ceanothus americana* but is generally known by its common name which refers to its use by the settlers in Revolutionary times as a substitute for tea.

Cercis canadensis

Just a few days ago one of my colleagues mentioned the beauty of the American redbud as he was looking through a catalogue. He proceeded to lament that they were not seen often. Indeed the lament is well made for this plant is not generally seen in the Chicago region. My first experience with this tree was on a field trip with the genial ecologist and teacher, Dr. Cowles. Crossing a small ravine in the vicinity of Starved Rock we saw the brilliant red of a small plant of redbud contrasted against the outcrop of rock behind it and overhanging a creek. That picture of a rock bluff supporting this magnificent living bouquet is still fresh after more than fifteen years.

While I have seen and grown the redbud since that time I have not seen quite the same setting. Apparently the redbud is appreciated more in the smaller towns near the rocky bluffs it seems to prefer, as there are many plants to be seen in Marseilles and Seneca as well as in the farmyards along

the road. Just outside of Seneca the road (U. S. 66) is literally bordered by the redbud growing from crevices in the rock and in the valleys. Here can be seen ravines literally colored by the glowing flowers. To the thousands who journey to Starved Rock may I suggest this trip by way of Seneca in late April as one of the highlights of nature in Central Illinois.

In cultivation the redbud is not particular. I have observed it growing wild in limestone crevices, in rich valley land, in sandy soil at Starved Rock. I know also of cultivated specimens growing and flowering in as wide a variety of soils, when planted, as they grow in naturally. At the Morton Arboretum there are magnificent specimens growing in clay, in Chicago plants can be seen in the sandy soil of Lincoln Park and in the loam fill of Hollywood Park, in the rich alluvial soil along the Beverly Ridge and in the loam of my yard.

In transplanting, the redbud has the annoying habit of sometimes dying back. However this is rarely fatal and new shoots usually arise from the base of the plant that give flowering stems in two years. There does not seem to be a great deal of difference in season as Fall and Spring plantings have given equal results. While balling may be advisable in large specimens, especially in preventing die-back of the branches, there does not seem to be much advantage in most cases if small sizes are planted. The redbud is a rapid grower until it reaches a height of eight or nine feet then the growth slows and the tree spreads into a zig-zag picturesque specimen. The redbud will bloom while still little more than a shrub. Even without the attractive flowers borne on the trunk, the glossy heart-shaped leaves would make this desirable as a specimen for the shrub border or lawn.

This is one of our natives that need

take no second place to the fine plants from other worlds. It is a sad reflection that this has not had the attention from commercial interests in this region that has been given to far less desirable plants.

Mung Beans

Everyone has heard of the soy bean which has been imported from the Orient to become one of our most useful crops. Few people know of another bean from there which is becoming important also. This is the Mung bean (*Phaseolus aureus*). The Mung bean is best known as an ingredient of Chinese cooking where it is encountered in the sprouted form as bean sprouts.

The mung bean is about the size of a large grain of wheat and is green or yellow in color. The beans are produced in long slender pods which radiate from the plants. The pods are hairy at first but soon lose this character. There seem to be several strains of this bean available or else the plant responds very differently on different soils. It is listed by a southern firm as growing 3-5 feet high but those in my garden last year did not grow more than ten inches which may have been due to late planting and dry soil. However the plants bore prolifically and showed no evidence of being anything but an erect bush.

The mung bean is probably native to India but is widely grown all over the Orient. In India it is used similarly to green beans, as dried beans and as fodder. In this country it is being grown in the south as a fodder plant. In north-

ern sections it is grown for the production of beans for sprouting. Its soil requirements are not exacting as it grows all over India and is listed as growing on sandy soils to heavy clay in this country.

The production of bean sprouts is simple. The dried beans are soaked for several hours and then placed in a suitable container on moist cloth and kept well dampened and covered in a warm temperature. In a few days the sprouts are about 1½ inches long and then are ready for use. They may be used raw for salads, or cooked and added to many of the Chinese dishes, chop suey being the commonest. There is no particular method of sprouting in small quantities as long as the beans are kept moist and warm. Darkness would be desirable to produce a white or yellowish sprout. Dripping pans, flower pots, or covered jars could be used equally well. For large quantities any devices used for sprouting grain could be used.

These beans have appeared in popular packets this season for home sprouting and quite likely will appear again. They are catalogued among the forage crops of a large southern seed house and are found in the Chinese sections of large cities. It is not a plant for the home garden unless one is exceptionally fond of the sprouts as a good sized area would be required to grow sufficient beans for winter use. The beans have to be threshed and cleaned and then sprouted before using so that small production is hardly justified if hand methods are to be employed.

ELDRED E. GREEN

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There is a small stock of most of the magazines from January, 1927, to date. Reprints from some of the magazines are also available. The reprints sell from 10c a copy to 50c; Mrs. Henry's "Collecting Plants Beyond the Frontier in Northern British Columbia" (4 parts bound in cloth) for \$1.50.

Special prices on back numbers of the magazine are as follows: Single numbers, except for the current volume and for the year just past, 60c a copy; 6 or more numbers up to 15 at a discount of 25% of regular price; 15 or more numbers at a discount of 30% of regular price. All 53 numbers in stock sold as a set for \$20.00. Detailed price list will be sent on request.

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